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[THIRD SERIES.]

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“..... per litora spargite muscum,  
Naiades, et circum vitreos considite fontes :  
Pollice virgineo teneros hic carpite flores :  
Floribus et pictum, divæ, replete canistrum.  
At vos, o Nymphæ Craterides, ite sub undas ;  
Ite, recurvato variata corallia trunco  
Vellite muscosis e rupibus, et mihi conchas  
Ferte, Deæ pelagi, et pingui conchylia succo.”  
*N. Parthenii Giannettasii* Ecl. 1.

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I.—*Note on the Structure and Terminology of the Reproductive System in the Corynidæ and Sertulariadæ.* By Prof. ALLMAN.

IN Professor Huxley's Monograph of the Oceanic Hydrozoa, lately published by the Ray Society—a work which, in accuracy of description, copiousness of illustration, and philosophic treatment of its subject, must take its place in the first rank in the literature of the lower groups of the animal kingdom,—the author proposes a terminology, partly special, for the particular groups which form the subject of his memoir, and partly intended to apply to the Hydrozoa in general.

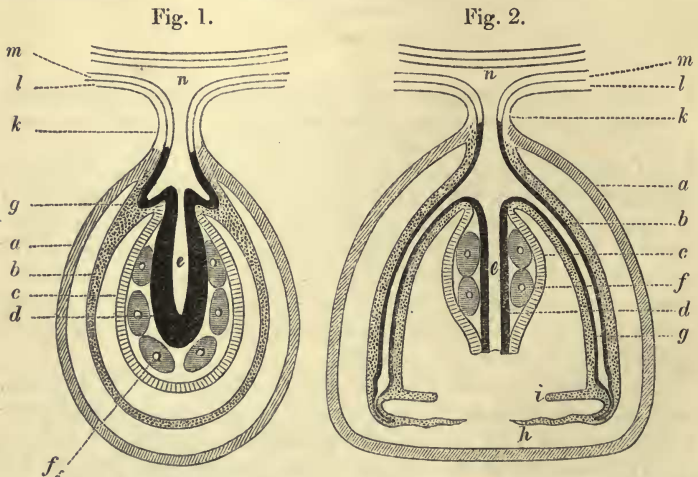
The greater part of Prof. Huxley's terminology is, I think, very valuable, and supplies a want long felt in the descriptive phraseology of this section of the animal kingdom; but I am nevertheless unable to coincide with him in that part of his work where he objects to my use of certain terms in the description of those parts of the Corynidæ and Sertulariadæ which are concerned in the function of reproduction.

I have given to Prof. Huxley's remarks on this matter that careful consideration to which they are entitled, not only from the authority with which their author's sanction must invest them, but from the excellent spirit in which they have been made; and it is not because I have any particular affection for my own terms, or would wish to insist on their priority as a

claim for their retention if any better be suggested, that I would now defend them, but it is because, while admitting the force of Prof. Huxley's criticism in some points, I feel that in others he has not entirely understood my views, and that several of his objections to my terms are founded on a misapprehension of the sense in which I have used them.

It is true that, since I first proposed a terminology of the parts in question, increased opportunities of observation have given me a clearer perception of the relations of these parts, and have somewhat modified my original views; but I see no reason to abandon the opinions I had expressed in some of my later publications.

I fear indeed that I have been occasionally somewhat obscure in my definitions, and that the sense in which I wished to apply certain terms has thus been not at all times sufficiently apparent. The accompanying diagrams, however, will explain my views of the structure of the parts under consideration, and, far better than any mere description, will fix the meaning of my terminology.



Plans of typical Gonophore. 1. Containing sporosac. 2. Containing medusoid. The same kinds of shading and the same letters are adopted in the two figures, with the view of indicating the homologous parts.

*a*, ectotheca; *b*, mesotheca or umbrella; *c*, endotheca; *d*, spadix; *e*, cavity of spadix; *c+d*, manubrium; *f*, generative elements; *g*, radiating canals; *h*, marginal tentacle; *i*, velum; *k*, peduncle; *l*, ectoderm of cœnosarc; *m*, endoderm of cœnosarc; *n*, somatic cavity.

The *gonophores* are certain buds of a peculiar structure, destined for the formation and protection of the generative elements.

The typical gonophore presents an external investment (*ectotheca*); a second investment (*mesotheca*), which lies immediately within the ectotheca; a third one (*endotheca*), situated immediately within the mesotheca; a central, more or less elongated body (*spadix*), which lies in the axis of the gonophore, and contains a cavity in free communication with that of the polype or cœnosarc ("somatic cavity" of Huxley); and lastly, the *generative elements* (ova or spermatozoa), which surround the spadix and are themselves immediately invested by the endotheca.

The ectotheca is a simple extension of the ectoderm of that part of the zoophyte from which the gonophore arises, and it encloses either a *sporosac* or a *medusoid*.

Professor Huxley objects to the use of the term "medusa," by which I have hitherto designated one form of the contents of the ectotheca, believing it "to be better to avoid all chance of confounding the detached reproductive organ of a hydrozoon with a truly independent organism;" and he prefers the expression "medusiform gonophores."

There is value in this criticism, and I by no means desire to insist on the retention of the word "medusa;" but "medusiform gonophore" does not express my meaning; for in the Corynidæ and Sertulariadæ, where the ectotheca is invariably present, it is not properly the gonophores that are medusiform, but rather that part of them which is contained within the ectotheca. In the Calycophoridæ and Physophoridæ (?) the ectotheca is apparently obsolete, at least after the very early stages of the gonophore have been passed, and the expression "medusiform gonophore" would then be quite applicable; all difficulty, however, will be avoided by the adoption of the term "medusoid"—a term which has already been for some time in use.

The mesotheca, endotheca, and spadix of the gonophore *may* all enter into the composition of a sporosac (e. g. *Tubularia indivisa*); they or their homologues *must* all enter into that of a medusoid.

When the mesotheca is present and contractile, the body is a medusoid; when it is absent or non-contractile, the body is a sporosac. The mesotheca becomes in the medusoid an *umbrella* ("gonocalyx" of Huxley).

Professor Huxley maintains that the transition between what I term sporosacs and medusæ (medusoids) is so gradual that no line of demarcation can be drawn between the two, though he would admit the applicability of the term sporosac to such forms as we meet with in Hydractinia. I believe, however, that the distinction is a practical one, and that the *differentiæ* involved in the above definitions are sufficiently decided for all purposes of description.

The endotheca and spadix, taken together, form the *manubrium*. The endotheca is the ectoderm, and the spadix the endoderm of the manubrium. It is between the endotheca and spadix that the generative elements are developed.

Professor Huxley would restrict the term manubrium to "the central polype-like sac of a medusiform gonophore, which is surely the homologue of the whole sporosac of *Hydractinia*, and not of its central cavity only." I admit that, in some of my earlier papers, I was not very clear myself on the homologies in question; and Professor Huxley, manifestly misled thereby, has here stated my views as somewhat different from what they really are. For me, however, as I at present understand the matter (see Rep. Brit. Ass. for 1858, Trans. Sec. p. 120, and Proc. Roy. Soc. Edinb. Dec. 1858), the manubrium is the whole of the "peduncle," "stomach," or by whatever other name it may be called, which depends from the centre of the umbrella in a medusa or medusoid; and I apply the same term to what I consider the homologous part in a sporosac,—namely, the whole sporosac *minus* the ectotheca and mesotheca.

The gonophore is borne as a bud, on the one hand *directly* either by the cœnosarc (*Cordylophora*, *Eudendrium*), or by the polype (*Coryne*); or, on the other hand, by a special column-like support, from which it is also developed as a bud (*Laomedea*, *Sertularia*, *Tubularia*). This support is the *blastostyle*.

The blastostyle with its gonophores may be naked (*Tubularia*, *Hydractinia*), or it may detach from its sides a layer of ectoderm, which will secrete upon its external surface a chitinous polypary in the form of a capsule or gonangium, whose axis will then be occupied by the blastostyle in the form of a column carrying the gonophores on its sides.

Prof. Huxley would restrict the term blastostyle to the axis of the capsule in such forms as that last described, and believes that when the stalk of the gonophores in *Tubularia* is also called so, the same name is applied to two different things,—this part in *Tubularia* containing the representatives of both the blastostyle and capsule of *Laomedea*.

In one sense this is true—in that, namely, in which it is true that the naked polype of *Tubularia* contains the representative of both the hydrotheca\* and polype of *Laomedea*; for there can

\* The term *hydrotheca* has been proposed by Huxley to designate the cup-shaped receptacle in which the polypes of the Sertulariadae are lodged, and which is commonly known as the "polype-cell." It is a valuable addition to our terminology of these animals, and is particularly useful in enabling us to avoid the ambiguity which attaches to the word "cell" when used in this sense, now that we have in histology an entirely different application of the term.

be no doubt that the gonangium in *Laomedea* is the homologue of a hydrotheca: so that, if we admit the validity of Prof. Huxley's objection, we must, on the same grounds, refrain from calling by one name the polype of *Tubularia*, where no hydrotheca exists, and that of *Laomedea*, which is protected by a hydrotheca,—a practice which few would venture to adopt.

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II.—On the Tribe Colletieæ, with some Observations on the Structure of the Seed in the Family of the Rhamnaceæ. By JOHN MIERS, F.R.S., F.L.S. &c.

[Continued from vol. v. p. 492.]

#### 8. TALGUENEA.

The characters of this genus have been imperfectly known, but they are sufficiently distinct from all others of the *Colletieæ*, especially from *Trevoa*, with which it has been confounded. It was originally proposed by me, in 1825, for the plant which I called *Talguenea costata*, after its vernacular name of *Talguén*; but Sir Wm. Hooker, in 1830, who had not then seen the fruit of *Trevoa*, considered it to be congeneric with the latter genus; and, on the authority of Dr. Gillies, he suppressed *Talguenea*, and placed the two typical plants as distinct species of *Trevoa* (Bot. Misc. i. 158). The former celebrated botanist, in 1833, having then seen the fruit of *Trevoa*, was induced to suppress that genus, and to refer *T. trinervis* to *Retamilia*, and at the same time (Bot. Misc. iii. 174) he first adopted the genus *Talguenea* as I had originally proposed it. It is strange that Dr. Gillies should have confounded two plants so totally distinct, as not only had he ample opportunity, while he resided with me at Concon, of examining them in the living state, but he also saw my drawings, in which their characters are fully shown. Colla, claiming the authority of Bertero, referred both *Talguenea* and *Trevoa* to *Colletia* (Mem. Torin. 37. p. 53). The prominent characteristic of *Talguenea* lies in the structure of its fruit, which consists of an indehiscent membranaceous carcerule, surmounted by its enlarged persistent style, of nearly equal length, and enclosed in its entire and unchanged calyx, which is perfectly free from it and about three-quarters of its length. The ovary is always 3-locular, each cell having a single erect ovule, but of these seldom more than one is perfected; the fruit, however, is occasionally 2-locular, or more rarely 3-celled. Among other peculiarities, we see in all the axils of *Talguenea* a very large squamose tubercle growing beneath the spines, from which issue many crowded fasciculated leaves and flowers; whereas in *Trevoa*, as before shown, this tubercle becomes extended into an